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Global Registry

Created on 18 November 2004, pursuant to Article 6 of the Agreement concerning the establishing of global technical regulations for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles (ECE/TRANS/132 and Corr.1) done at Geneva on 25 June 1998

Addendum 3: United Nations Global Technical Regulation No. 3

United Nations Global Technical Regulation on Motorcycle brake systems

Amendment 3 – Appendix 1

(Established in the Global Registry on 24 June 2020)

Proposal and report pursuant to Article 6, paragraph 6.3.7., of the Agreement

- Authorization to develop Amendment 3 to UN GTR No. 3 (Motorcycle brake systems) (ECE/TRANS/WP.29/AC.3/47).
- Technical report on the development of Amendment 3 to UN GTR No. 3 (Motorcycle brake systems) (ECE/TRANS/WP.29/2020/48).



UNITED NATIONS

Authorisation to develop Amendment 3 to UN GTR No. 3 (Motorcycle braking)

I. Objective

1. The objective is of this proposal to develop, in the framework of the 1998 Agreement, an amendment to UN Global Technical Regulation (UN GTR) No. 3 on motorcycle braking to adapt the Regulation to technical progress addressing: electromagnetic immunity of ABS-systems, introducing ABS performance requirements for category 3-5 vehicles (three-wheelers), ensuring uniform requirements for equipment such as Electronic Stop Signal System and the means to disable the ABS, if equipped. This amendment aims to harmonise the UN GTR with recent amendments made to UN Regulation No. 78. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Executive Committee of the 1998 Agreement (AC.3) for consideration.

II. Background

2. One of the main purposes of UN GTR No. 3 is to reduce the injuries and fatalities associated with motorcycle accidents by addressing the braking performance of motorcycles as a means of improving road safety.

3. The first objective of this proposal is to harmonise the UN GTR with the provisions of Supplement 3 to the 03 series of amendments to UN Regulation No. 78, as adopted at June 169th session of WP.29 (ECE/TRANS/WP.29/2016/56, amended by WP29-169-03). The main technical issues, including their justification for updating the global technical regulation are:

(a) To include Electromagnetic Compatibility (EMC) requirements for ABS. With the increasing number and complexity of electronic braking devices, it is important to ensure that the braking performance is not affected electromagnetic perturbations by verifying the electromagnetic immunity. The corresponding provisions are reproduced in Annex 4 to the eightieth session report of the Working Party on Brake and Running Gear (GRRF). When transposing this matter into the 1998 Agreement, the specificities of self-certification will have to be addressed.

(b) To apply to tri-cycles (category 3-5 Vehicles)¹ the existing Anti-Lock Braking Systems (ABS) requirements for Powered Two Wheelers (PTWs) based on ECE/TRANS/WP.29/GRRF/2015/42. If such vehicles were equipped with ABS, without the amendment, there would be no specific requirements for the ABS braking performance. The scope extension of the ABS requirements to L₆ and L₇ vehicles² shall not be transposed into the UN GTR due to the absence of definitions for this type of vehicles in (S.R.1) the 1998 Agreement.

(c) To introduce the installation of Emergency Stop Signal on motorcycles based on ECE/TRANS/WP.29/2016/56, amended by WP29-169-03. The associated amendment of UN Regulation No. 53 (lighting installation) was adopted at 168th session of WP.29 (ECE/TRANS/WP.29/2016/22). This proposed amendment to the UN GTR would only include the emergency stop signal activation conditions, not the corresponding lighting requirements. The benefit of defining for category 3 vehicles Emergency Stop Signal provisions is to ensure similar behaviour as other road vehicles by harmonising the activation and deactivation criteria of the Emergency Stop Signal as applied to cars.

¹ As defined in the Special Resolution No. 1 concerning the common definitions of vehicle categories, masses and dimensions (S.R.1), document ECE/TRANS/WP.29/1045, Amend 1 and 2, Annex 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

² As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, para. 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

4. The second objective is to clarify the requirements of a means to disable the ABS function ('ABS Switch') in certain conditions for category 3 vehicles, if equipped. With this amendment, it is ensured that the implementation and operation of an 'ABS switch' is clear and uniform across different markets: for example, if a vehicle is equipped with a function to disable the ABS, the ABS operating status should be clearly displayed to the operator. In addition, deactivation of the ABS function should not be possible inadvertently. Reference is made to ECE/TRANS/WP.29/2016/114 as amended by WP.29-170-05.

5. The development of draft language for updating UN GTR No.3 with the above listed items will require consideration of the differences between the respective 1998 Agreement and 1958 Agreement. Specific solutions for the different technical items will need to be found. GRRF experts will be requested to support and contribute in this process.

III. Subject of amendment

6. The amendment to UN GTR No. 3 shall include:
- (a) Amendment of the Statement of technical rationale and justification;
 - (b) Amendment of the Text of the global technical regulation
 - (c) Technical Report

IV. Organization of process and timeline

7. The proposal will be drafted by the experts from Italy with the support of the International Motorcycle Manufacturers Association (IMMA) and in cooperation with all interested GRRF experts to ensure maximum of support to the final proposal. Specific meetings of interested experts are not yet planned but may be organized, if necessary.

8. The proposed action plan:
- (a) November 2016: Request for amendment of UN GTR No. 3 at AC.3
 - (b) January 2017: Introduction and consideration of the proposal (informal document) at the eighty-third GRRF session;
 - (c) March 2017: Formal request for amendment of UN GTR No. 3 at AC.3
 - (d) September 2017: Proposal for adoption at the eighty-fourth GRRF session and technical report;
 - (e) March 2018: Adoption of the proposal and technical report by AC.3, if all remaining issues had been solved

9. The work progress will be reported to AC.3 at its March, June, November 2017 sessions.

Technical report on the development of Amendment 3 to UN Global Technical Regulation No. 3 (Motorcycle braking)

I. Background

1. UN Global Technical Regulation (UN GTR) No. 3 on motorcycle braking was established in the Global Registry on 15 November 2006. For the development of UN GTR No. 3, the informal group on motorcycle brakes considered the result of an assessment of the relative stringency of three motorcycle brake system regulations in which UN Regulation No. 78, the Federal Motor Vehicle Safety Standard (FMVSS) No. 122 and the Japanese Safety Standard (JSS) 12-61 were compared.
2. The first amendment to UN GTR No. 3 on motorcycle braking was established in the Global Registry on 26 June 2008 with the aim to clarify and align the provisions for the measurement of PBC with those of UN Regulation No. 78.
3. The second and latest amendment to UN GTR No. 3 was established in the Global Registry on 12 March 2015. The Amendment 2 clarified the text of UN GTR No. 3 concerning the possible confusion in the interpretation of the terms "inoperative" and "disconnected". It also corrected some cross-references as well as titles and it introduced failure test requirements for Combined Braking Systems (CBS) to cover recent developments of braking systems.
4. Since the Amendment 2 to UN GTR No. 3 was established in the Global Registry, UN Regulation No. 78, which is an important input for UN GTR No. 3, has been amended for adaptation to technical progress, addressing: electromagnetic immunity of ABS-systems, introducing ABS performance requirements for category³ 3-5 vehicles (three-wheelers), ensuring uniform requirements for equipment such as Emergency Stop Signal (ESS) system and the means to disable the ABS, if equipped.
5. As the aforesaid new provisions of Regulation No. 78 address the state-of-the art level and are important for assessment of performance of motorcycle braking on the markets worldwide, at the eighty-second GRRF session the decision was made to prepare a draft amendment to harmonize UN GTR on motorcycle braking with the latest regulatory developments (ECE/TRANS/WP.29/GRRF/82, para.24). The representative of Italy assumed the duties of the technical sponsor for that development.
6. At the forty-sixth session of the Executive Committee of the 1998 Agreement (AC.3), the representative of Italy presented the informal document WP.29-170-07, requesting AC.3 authorization for the development of an amendment to GTR No. 3 under the sponsorship of his country. AC.3 agreed with the proposal, invited GRRF to start working on these issues and requested the secretariat to distribute WP.29-170-07 with an official symbol for formal adoption at its March 2017 session.
7. AC.3 at its forty-seventh session adopted ECE/TRANS/WP.29/2017/51 tabled by Italy to officially request the authorization to start work on developing the Amendment 3 to UN GTR No. 3.

II. Process organization

8. The proposal for Amendment 3 to UN GTR No. 3 was drafted by the experts from Italy with the support of the International Motorcycle Manufacturers Association (IMMA) and in cooperation with all interested GRRF/GRVA experts to ensure maximum of support to the final proposal.

³ As defined in the Special Resolution No. 1 concerning the common definitions of vehicle categories, masses and dimensions (S.R.1), document ECE/TRANS/WP.29/1045, Amend 1 and 2, Annex 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

9. At the eighty-third session of GRRF, the expert from Italy introduced GRRF-83-09. The expert from Canada answered to the proposal with GRRF-83-10. GRRF agreed to resume consideration of these proposals based on an official working document that the experts from Canada and Italy volunteered to prepare.

10. The expert from Italy presented ECE/TRANS/WP.29/GRRF/2017/15 to GRRF at its eighty-fourth session, taking into consideration the outcome of the discussions during the previous session. Considering that the wording regarding the means to disable ABS deviated from UN Regulation No. 78, GRRF agreed with the expert from Italy to draft provisions of UN GTR No. 3 aimed at accommodating enforceability in markets with systems of compliance based on self-certification, but recommended to keep the draft amendment as harmonized as possible with UN Regulation No. 78, especially regarding the ABS switch, to avoid subsequent amendments to UN Regulation No. 78.

11. At the second session of GRVA, the expert from Italy introduced GRVA-02-07 proposing amendments to the original proposal (ECE/TRANS/WP.29/GRVA/2018/9). The expert from the Netherlands suggested to minimize the provisions that differed from those in UN Regulation No. 78. The expert from Canada highlighted some formulations that could be better defined to facilitate the implementation of the UN GTR into self-certification regulations. To address further questions by Contracting Parties, a requirement was added considering the information to be presented to the rider for the situation whereby the rear ABS would be disabled for vehicles fitted with an ABS system active on both axles.

12. Considering that the discussions on UN GTR No. 3 had taken six GRRF/GRVA sessions, and in order to finalize the text of the draft Amendment 3 to UN GTR No. 3 in due time, IMMA, in agreement with the expert from Italy, invited GRVA interested experts to participate in a web conference with the aim to discuss those comments further in mid-April 2019.

13. Two web conferences took place on 17 April and 7 June 2019 with interested experts to review the proposal for working documents including comments from GRVA experts and other ones received after the second session of GRVA.

14. The results of discussion at the web conferences were included in the working documents on the Amendment 3 to UN GTR No. 3, which were finalized by the expert of Italy and submitted for consideration and possible adoption at the fourth GRVA session.

15. Following discussions with several Contracting Parties, efforts were made to match the wording of the GTR amendment to the extent possible with the latest language in UN Regulation No. 78. An associated proposal to amend UN Regulation No. 78 was developed to align and clarify the language, while not changing the requirements, to ensure consistency with UN GTR No.3.

16. GRVA at its fourth session adopted the working document on the Amendment 3 to UN GTR No. 3 subject to consideration by WP.29 and AC.3 at their sessions on March 2019.

III. Development of the UN GTR

17. The objective of the proposal is to develop, in the framework of the 1998 Agreement, an amendment to UN GTR No. 3 on motorcycle braking aimed at adaptation of UN GTR No. 3 to the technical progress by including electromagnetic immunity of ABS-systems, introducing ABS performance requirements for category⁴ 3-5 vehicles (three-wheelers), ensuring uniform requirements for equipment such as Emergency Stop Signal (ESS) system and the means to disable the ABS, if equipped.

18. The development of the draft language for updating the GTR involved consideration of the differences between the respective 1998 Agreement and 1958 Agreement. Specific

⁴ As defined in the Special Resolution No. 1 concerning the common definitions of vehicle categories, masses and dimensions (S.R.1), document ECE/TRANS/WP.29/1045, Amend 1 and 2, Annex 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

solutions for the different technical items were developed whereby GRRF experts were requested to support and contribute in the process.

19. The Amendment 3 to UN GTR No. 3 incorporates:

(a) Addition of new definitions (Section 2):

"Emergency braking signal"

Harmonized with Supplement 3 to the 03 series of amendments to UN Regulation No. 78 – ECE/TRANS/WP.29/2016/56, as amended by para. 59 of the report of the 169th WP.29 session (ECE/TRANS/WP.29/1123);

"Disable the antilock brake system"

(b) Electromagnetic immunity of ABS system (Section 3.1.14):

Harmonized with Supplement 3 to the 03 series of amendments to UN Regulation No. 78 – ECE/TRANS/WP.29/2016/56, as amended by para. 59 of the report of the 169th WP.29 session (ECE/TRANS/WP.29/1123);

(c) Emergency braking signal provisions (Section 3.1.15):

Harmonized with Supplement 3 to the 03 series of amendments to UN Regulation No. 78 – ECE/TRANS/WP.29/2016/56, as amended by para. 59 of the report of the 169th WP.29 session (ECE/TRANS/WP.29/1123);

(d) Requirements for disabling ABS (Section 3.1.16):

Harmonized with the 04 series of amendments to UN Regulation No. 78 – ECE/TRANS/WP.29/2016/114, as amended by para. 83 of the report of the 170th WP.29 session (ECE/TRANS/WP.29/1126);

(e) Clarifications on the applicability of ABS test requirements (Section 4.9).

IV. Conclusion

20. Following the adoption of the draft Amendment 3 to UN GTR No. 3 at its fourth session, GRVA recommends AC.3 voting for establishing this Amendment 3 (as proposed in ECE/TRANS/WP.29/2020/47) in the Global Registry.
